

Appl. No.: 10/807,657
Amdt. dated 10/17/2005
Reply to Office action of July 15, 2005

Amendments to the Claims:

Please amend Claims 1, 3-5, 7, 10, 11, 13, 15-17, 19, 23-27, 31, 33, 35, 39, 41, and 42 as follows:

1. (Currently Amended) A card-flipping device for turning a card over in a card printer, comprising:

a card-carrier unit for transporting the card in a vertical direction, the unit slidably attached to a vertical guide rail mounted to the frame of the printer, and the unit including at least one a pair of rotatable flip guide guides for holding the card;

a motor driven means coupled to the card-carrier unit for moving the unit in ascending and descending directions along the vertical guide rail; and

an actuator assembly, comprising:

(i) a rotatable cam arm connected to ~~the card-carrier unit and said rotatable flip guide~~, the arm being capable of moving in ascending and descending directions with the card-carrier unit,

(ii) a spring biasing means,

(iii) a pair of sliding flip stop members, the members being in a first position, wherein the ascending cam arm engages a flip stop member and a force exerted by a spring means causes the cam arm to rotate 180 degrees, thereby turning the card over; and

(iv) a pair of sliding flip stop actuator levers, wherein the descending cam arm of the card-carrier unit engages an actuator lever, thereby causing the flip stop members to slide from the first position to a second position.

2. (Original) The card-flipping device of claim 1, wherein the card-carrier unit has a U-shaped structure comprising an upper wall portion and two extending sidewall portions.

3. (Currently Amended) The card-flipping device of claim 1, wherein there are two the rotatable flip guides including ~~include~~ an inner flip guide and an outer flip guide, the inner flip guide being connected to the cam arm, and the outer flip being connected to a shaft.

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4. (Currently Amended) The card-flipping device of claim 1, wherein the rotatable flip guide ~~includes guides include~~ an azimuth adjuster that engages said rotatable ~~the inner~~ flip guide and slides upwardly and downwardly within a vertical adjuster channel.

5. (Currently Amended) The card-flipping device of claim 1, wherein there are two rotatable flip guides, wherein each rotatable flip guide comprises a first elongated side frame member and a second elongated side frame member that are spaced apart to define a card-retaining channel there between,

the first side frame member having an inner edge with a substantially concave central portion, and the second side frame member having an inner edge with a substantially convex central portion for gripping the card with the card-retaining channel.

6. (Original) The card-flipping device of claim 1, wherein the printer is a thermal card printer.

7. (Currently Amended) A thermal card printer apparatus, comprising:

a) a print station for thermally printing indicia on a surface of a card substrate;

b) a linear transport system for transporting the card beneath the print station, the linear transport system comprising:

(i) a carriage for receiving the card, wherein the surface of the card to be printed faces upwards in the carriage;

(ii) a linear guide means for guiding the carriage along the linear guide means;
and

(iii) a reversible drive means for driving the carriage along the linear guide means; and

c) a card-flipping device for turning the card over, the card-flipping device comprising:
a card-carrier unit for transporting the card in a vertical direction, the unit slidably attached to a vertical guide rail mounted to the frame of the printer, and the unit including at least one ~~a pair of~~ rotatable flip guide ~~guides~~ for holding the card;

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a motor drive means coupled to the card-carrier unit for moving the unit in ascending and descending directions along the vertical guide rail; and

an actuator assembly, comprising:

- (i) a rotatable cam arm connected to the card-carrier unit and said rotatable flip guide, the arm being capable of moving in ascending and descending directions with the card-carrier unit,
- (ii) spring biasing means,
- (iii) a pair of sliding flip stop members, the members being in a first position, wherein the ascending cam arm engages a flip stop member and a force exerted by a spring means causes the cam arm to rotate 180 degrees, thereby turning the card over; and
- (iv) a pair of sliding flip stop actuator levers, wherein the descending cam arm of the card-carrier unit engages an actuator lever, thereby causing the flip stop members to slide from the first position to a second position.

8. (Original) The thermal card printer apparatus of claim 7, further comprising a card-cleaning assembly for cleaning debris from a surface of the card.

9. (Original) The thermal card printer apparatus of claim 7, further comprising a laminating assembly for laminating a film to a surface of the card.

10. (Currently Amended) A device for use with a printer for reorienting media used by the printer, comprising:

a frame comprising at least one guide rail extending relative to a defined media path of a printer;

a carrier unit ~~rotatably and~~ slidably coupled to said guide rail for transporting the media in a first direction and in an opposite direction along said guide rail;

at least one rotatable flip guide coupled to said carrier unit for holding the media; and
at least one flip stop member adjacent said guide rail,

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wherein when said carrier unit slides along said guide rail, said ~~carrier unit contacts~~ said flip stop member passively interacts with ~~causing~~ said rotatable flip guide ~~causing~~ said rotatable flip guide ~~carrier unit~~ to rotate thereby reorienting the media located in said carrier unit.

11. (Currently Amended) A device according to claim 10, wherein said carrier unit further comprises a cam arm coupled to said rotatable flip guide, wherein when said carrier unit slides along said guide rail said cam arm contacts said flip stop member causing said cam arm and rotatable flip guide ~~carrier unit~~ to rotate thereby reorienting the media located in said carrier unit.

12. (Previously Presented) A device according to claim 10 further comprising a biasing member coupled to and exerting a force on said cam arm for assisting in rotation of said cam arm.

13. (Currently Amended) A device according to claim 10 further comprising a biasing member coupled to and exerting a force on said rotatable flip guide ~~carrier unit~~ for assisting in rotation of said rotatable flip guide ~~carrier unit~~.

14. (Previously Presented) A device according to claim 10 further comprising motor driven means coupled to said carrier unit for moving the unit in the first and opposed directions.

15. (Currently Amended) A device according to claim 10, wherein said carrier unit further comprises two ~~one or more~~ flip guides for holding the media.

16. (Currently Amended) A device according to claim 10 ~~15~~, wherein said carrier unit further comprises a shaft connected to said flip guide for rotating the flip guide and an adjustable friction means connected to said shaft to dampen oscillations in said carrier unit.

17. (Currently Amended) A device according to claim 10, wherein said flip stop member is locatable in both an extended and a retracted position relative to said guide rail, wherein in the extended position said flip stop member interacts with ~~contacts~~ said rotatable flip guide ~~carrier~~

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~~unit~~ as said carrier unit slides along said guide rail to thereby reorient said rotatable flip guide
~~carrier unit~~.

18. (Previously Presented) A device according to claim 17 further comprising an actuator adjacent to said guide rail for placing said flip stop member in either the extended position or the retracted position.

19. (Currently Amended) A device according to claim 10 comprising a pair flip stop members spaced apart from each other, wherein said flip stop members are locatable in both extended and retracted positions, wherein one of said flip stop members is in an extended position for interacting with ~~contacting~~ said rotatable flip guide ~~carrier unit~~ and the other of said flip stop members is in a retracted position to avoid interaction ~~contact~~ with said rotatable flip guide ~~carrier unit~~ as said carrier unit slides along said guide rail.

20. (Previously Presented) A device according to claim 18 further comprising an actuator adjacent said guide rail for placing said flip stop members in either the extended position or the retracted position.

21. (Previously Presented) A device according to claim 20, wherein said actuator is connected to said frame and said frame is slidably connected to said flip stop members, such that when said carrier unit contacts said actuator, said frame slides relative to said flip stop members to place one of said flip stop members in an extended position and the other of said flip stop members in a retracted position.

22. (Previously Presented) A device according to claim 18, wherein said actuator is connected to said frame and said frame is slidably connected to said flip stop member, such that when said carrier unit contacts said actuator, said frame slides relative to said flip stop member thereby placing said flip stop member into a retracted position.

23. (Currently Amended) A device according to claim 11, wherein there are ~~said carrier unit further comprises~~ two rotatable flip guides for holding the media, wherein one of said flip

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guides is an inner flip guide coupled to said the cam arm, and the other flip guide is an outer flip guide coupled to a shaft.

24. (Currently Amended) A device according to claim 10, wherein said frame further comprises a guide channel extending relative to the defined media path of a printer and substantially parallel with said guide rail, and said carrier unit further comprises an azimuth adjuster locatable in said guide channel to adjust the azimuth of said rotatable flip guide carrier unit as it slides along said guide rail.

25. (Currently Amended) A device according to claim 10, wherein there are said carrier unit comprises two rotatable flip guides for holding the media, wherein each flip guide comprises a first elongated side frame member and a second elongated side frame member that are spaced apart to define a media-retaining channel there between, the first side frame member having an inner edge with a substantially concave central portion, and the second side frame member having an inner edge with a substantially convex central portion for gripping the media with the media-retaining channel.

26. (Currently Amended) A method for reorienting media used by a printer, comprising:
providing a media flipping unit comprising:

a frame comprising at least one guide rail extending relative to a defined media path of a printer;

a carrier unit ~~rotatably and~~ slidably coupled to said guide rail for transporting the media in a first direction and in an opposite direction along said guide rail;

at least one rotatable flip guide coupled to said carrier unit for holding the media;
and

at least one flip stop member adjacent said guide rail;
inserting media into the rotatable flip guide of the carrier unit;
sliding the carrier unit along the guide rail;

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~~causing contacting the rotatable flip guide carrier unit to passively interact~~ with the flip stop member causing the ~~rotatable flip guide carrier unit~~ to rotate thereby reorienting the media located in the carrier unit.

27. (Currently Amended) A method according to claim 26, wherein the carrier unit further comprises a cam arm, wherein said contacting step comprises contacting the flip stop member with the cam arm to thereby rotate the ~~rotatable flip guide carrier unit~~.

28. (Previously Presented) A method according to claim 26 further comprising exerting a force on the cam arm with a biasing means for assisting in rotation of the cam arm.

29. (Previously Presented) A method according to claim 26 further comprising exerting a force on the carrier unit with a biasing means for assisting in rotation of the carrier unit.

30. (Previously Presented) A method according to claim 26, wherein said sliding step comprises driving the carrier unit in the first and opposite directions using motor driven means.

31. (Currently Amended) A method according to claim 26, wherein said inserting step comprises inserting the media into ~~the flip guide guides~~ located in the carrier unit.

32. (Previously Presented) A method according to claim 26 further comprising dampening oscillations in the carrier unit.

33. (Currently Amended) A method according to claim 26, wherein the flip stop member is locatable in both extended and retracted positions relative to the guide rail. wherein in said contacting step, the flip stop member in the extended position contacts the carrier unit as the carrier unit slides along the guide rail to thereby reorient the ~~rotatable flip guide carrier unit~~.

34. (Previously Presented) A method according to claim 33 further comprising placing said flip stop member in either the extended position or the retracted position.

35. (Currently Amended) A method according to claim 26, wherein the media flipping unit comprises a pair flip stop members spaced apart from each other, wherein said flip stop

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members are locatable in both extended and retracted positions, said method further comprising the step of placing one of the flip stop members in an extended position for interacting with the rotatable flip guide contacting the carrier unit and the other of the flip stop members in a retracted position to avoid interacting with the rotatable flip guide contact the carrier unit as the carrier unit slides along the guide rail.

36. (Previously Presented) A method according to claim 35 further comprising placing the flip stop members in either the extended position or the retracted position.

37. (Previously Presented) A method according to claim 36, wherein the frame is slidably connected to the flip stop members, such that said placing step comprises sliding the frame relative to the flip stop members to place one of the flip stop members in an extended position and the other of the flip stop members in a retracted position.

38. (Previously Presented) A method according to claim 34, wherein the frame is slidably connected to the flip stop member, such that said placing step comprises sliding the frame relative to the flip stop member to place the flip stop member in either an extended or retracted position.

39. (Currently Amended) A method according to claim 26 further comprising adjusting the azimuth of the carrier unit as the carrier unit slides slide along the guide rail.

40. (Previously Presented) A method according to claim 26, wherein said providing step provides a carrier unit further comprising two flip guides for holding the media, wherein each flip guide comprises a first elongated side frame member and a second elongated side frame member that are spaced apart to define a media-retaining channel there between, the first side frame member having an inner edge with a substantially concave central portion, and the second side frame member having an inner edge with a substantially convex central portion for gripping the media with the media-retaining channel.

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41. (Currently Amended) A device for use with a printer for reorienting media used by the printer, comprising:
a frame comprising at least one guide rail extending relative to a defined media path of a printer;
a carrier unit ~~rotatably and~~ slidably coupled to said guide rail for transporting the media in a first direction and in an opposite direction along said guide rail;
at least one rotatable flip guide coupled to said carrier unit for holding the media;
a cam arm connected to said rotatable flip guide ~~carrier unit~~; and
at least one flip stop member adjacent said guide rail,
wherein when said carrier unit slides along said guide rail, said cam arm contacts said flip stop member causing said cam arm and rotatable flip guide ~~carrier unit~~ to rotate thereby reorienting the media located in said carrier unit.

42. (Currently Amended) A device for use with a printer for reorienting media used by the printer, comprising:
a frame comprising at least one guide rail extending relative to a defined media path of a printer;
a carrier unit ~~rotatably and~~ slidably coupled to said guide rail for transporting the media in a first direction and in an opposite direction along said guide rail;
at least one rotatable flip guide coupled to said carrier unit for holding the media; and
a pair flip stop members adjacent said guide rail spaced apart from each other, wherein said flip stop members are locatable in both extended and retracted positions, wherein one of said flip stop members is in an extended position for interacting with said rotatable flip guide ~~contacting said carrier unit~~ and the other of said flip stop members is in a retracted position to avoid interacting with said rotatable flip guide ~~contact with said carrier unit~~ as said carrier unit slides along said guide rail, and wherein when said carrier unit slides along said guide rail, said carrier unit contacts said flip stop member located in the extended position causing said rotatable flip guide ~~carrier unit~~ to rotate thereby reorienting the media ~~located in said carrier unit~~.

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43. (Previously Presented) A device according to claim 42 further comprising an actuator adjacent said guide rail for placing said flip stop members in either the extended position or the retracted position, wherein said actuator is connected to said frame and said frame is slidably connected to said flip stop members, such that when said carrier unit contacts said actuator, said frame slides relative to said flip stop members to place one of said flip stop members in an extended position and the other of said flip stop members in a retracted position.

44-49. (Withdrawn).